

AGRICULTURAL NEWS LETTER

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AGRICULTURAL NEWS LETTER

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WHAT FARM EDITORS ARE SAYING --

"Our manufacturers of farm chemicals have spent millions of dollars in research, developing new chemicals, testing and proving the promising, discarding the useless, passing on to the rest of us those that are found to be worthy. Without chemicals to promote growth of plants and animals, and chemicals to protect that growth from its natural enemies, how long could agriculture as we know it stand?" -- PROGRESSIVE FARMER

"The responsibility of providing food and fiber for a growing country is a real one. . . and you can just about bet your bottom dollar that the one most important activity, so far as fulfilling tomorrow's needs are concerned, is today's agricultural research." -- Lawrence A. Long in CROPLIFE

"The only practical way to develop better farming methods is through agricultural research conducted by reliable and competent people. Industry has made great contributions to agriculture through the billions of dollars spent on research during the past decade and industry is increasing the amount spent on agricultural research yearly." -- TENNESSEE FARMER

"Communist bombs are to be feared but not Communist ideas or economic system. The free peoples can beat them on both fronts." -- WISCONSIN AGRICULTURIST AND FARMER

"This trend to greater efficiency in agriculture will continue if we retain incentives to do better and get ahead." -- Berry H. Akers in THE FARMER

"Without agriculture, industry would fall by the wayside. On the other hand, industry is a mighty good customer of agriculture." -- John F. Case in MISSOURI RURALIST

"Controlling orchard insect pests and diseases is far from being a simple matter. When a satisfactory job is done, it is because of the effective teamwork of at least five groups of workers; entomologists, plant pathologists, chemists, engineers, and the growers themselves." -- Robert Couchman in WESTERN FRUIT GROWER

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TOMATO GROWERS KEEP RAISING THEIR SIGHTS

Ten Tons Per Acre -- Once a Challenge, Now Commonplace

A \$500 wrist watch was the prize for John Cottey of Greenfield, Indiana, in 1925 when he topped the state's tomato producers with a championship yield of 12 tons per acre. Nowadays a yield this size is commonplace for most U. S. areas where tomatoes are grown for processing. In California, which has produced half of a year's total of tomatoes for processing for the nation, the average yield has reached 17 tons to the acre, nearly three times what California growers averaged at the end of the war.

Canners' demand for a dependable supply of high quality tomatoes led to the establishment of tomato championship contests. Probably the earliest was the 10-Ton Plus Club formed in Indiana in 1925 and carried on for about 10 years. It was succeeded by the Indiana U. S. Won Club and the Double Tonnage Club. In 1954, Indiana growers faced the challenge of the 25-Ton Tomato Club, and Carl E. Ross of Walton, Ind., was the first to qualify for membership.

Pennsylvania raised its championship requirements to 20 tons per acre in 1952, after more than 1200 growers qualified for 10-ton membership in 1951. Indiana and Ohio each have a little variation on the total production championship requirements. The Double Tonnage Club in Indiana has been formed for recognition of the growers who produce double the average production for all contract growers supplying an individual cannery. In New Jersey, 10-Ton winners numbered 669 in 1953, compared with 11 in 1934.

In Ohio, the Top Ten Club honors the top 10 per cent of growers supplying each canning company. Here too, the 10-ton qualification is no longer a challenge -- the average yield for the Buckeye state in 1953 was 11.6 tons per acre. In addition, Indiana and Delaware have tomato production contests for junior growers.

At least five states have formal tomato production competition each year. Sponsors include the canning companies, the state college and county extension services, and associations of canners and growers. In Ohio, the Baltimore and Ohio Railroad is also one of the sponsors. The organizations and contests not only challenge growers to raise bigger crops, but they also serve as a means of pooling information on all kinds of growing practices.

Several basic advances get a large part of the credit for making possible the higher goals for tomato production. One, of course, is the improvement in tomato varieties. This could be a story in itself, as plant breeders have succeeded in developing special varieties to suit local conditions. New Jersey has contributed the Garden State variety, which is also popular

in Illinois, and the Rutgers, which has also found favor in Ohio and Virginia. In Ohio, a common practice is to plant part of the acreage with Rutgers, and the remainder with an earlier maturing variety. In New York, two varieties (Long Red and Red Jacket), developed by the Geneva Agricultural Experiment Station, account for 85 per cent of the Empire State's total production of tomatoes for processing. California growers like the Pearson variety, introduced by the University's Department of Vegetable Crops. This variety sets well under a wide range of conditions, and the fruit keeps well on the vine so fewer pickings are needed. Its habit of growth permits about three times as many plants per acre as were possible with the old Santa Clara variety.

Tomato field fertilizer applications have probably more than doubled in recent years, and the use of soluble fertilizers has become common. "NuGreen" fertilizer compound, for example, is commonly used in irrigation systems and in pest control sprays, to give an extra shot of nitrogen at critical times. Better soil management through use of sod crops, green manure, and rotation has also played an important part in raising tomato production sights.

There has been a big change in the use of pest control chemicals, too. Preventive spray schedules were a comparatively new idea to many growers until the famous late blight epidemic of 1946. Before that time, growers waited until insects or diseases were conspicuous before taking action. Most fields went through most seasons without any pest control measures at all.

Now, however, virtually all of the eastern commercial tomato acreage is on a regular pest control schedule, and mid-western growers, too, are finding that it pays. In Ohio, for example, the 1947 champions were about evenly divided on pest control spraying. Now virtually all the winning acreages have been protected with insecticides and fungicides on a regular schedule. On over 85 per cent of the Ohio acreage, ground power-operated sprayers are used to apply the chemicals. Ground dusting and airplane application account for most of the rest. Thus far, California's famous climate has kept disease problems from becoming serious for tomato growers, so pest control applications have been pretty much limited to insecticides -- and then only when insects actually appear.

Recent experience, especially in the Midwest, has indicated that an earlier start and more frequent spraying provide for an even bigger pay-off on a pest control schedule.

Superior control of anthracnose has been achieved with a spray schedule beginning two weeks after appearance of first cluster buds rather than waiting three to four weeks. Even though anthracnose spots are not visible until the fruit

begins to ripen, infection may have taken place much earlier.

Shortening the spray interval to seven days, rather than two weeks, also pays. Dr. R. W. Samson of Purdue reports that in 1954 tests, spraying with "Manzate" maneb fungicide six times at seven-day intervals showed a yield of 21.8 tons compared with a yield of only 13.8 tons on fields sprayed three times with the same material at two-week intervals. On unsprayed plots, the yield was only 6.7 tons to the acre.

Keeping the leaves on the vines affects both tonnage and quality of tomatoes. Both early blight and Septoria leaf spot defoliate the plant seriously, and only a moderate infestation will remove needed shade, permitting the fruit to absorb more heat. If growing tomatoes heat up above 86°F., the red pigment (lycopine) is not deposited, while the carotene is. The result is a softer fruit with poorer color and flavor, which is especially susceptible to anthracnose infection.

Teamwork of the kind developed through the tomato championship contests will help keep growers informed so that there is better defense than ever against an epidemic like that of 1946.

As for tomato production, no all-time champion has ever been crowned. But one record worth shooting at is the Pennsylvania state record of 33.47 tons to the acre held by Oscar Troxell of New Ringgold, Pa.

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MORE HAY, BETTER FEED, STRONGER

CROP THROUGH LEAFHOPPER CONTROL

Field studies and practical demonstrations on the control of potato leafhoppers in alfalfa hay crops have been in progress for the past several years. Where the feeding of these tiny insects on alfalfa foliage tends to turn the crop yellow in the second or third cutting, or where the soil is on the light, sandy side, these studies indicate the following advantages may be expected from insecticide applications to control these pests:

1. From 15 to 100 per cent more hay.
2. Crop will contain from 15 to 25 per cent more protein and up to double the Vitamin A content, thus supplying

a roughage feed capable of producing more milk on less feed.

3. A stronger stand to overwinter, and therefore a stronger, faster growing stand the following spring.

Emulsifiable formulations containing methoxychlor have proved especially effective in leafhopper control, and have the added advantage of a low order of toxicity which eliminates the problem of hazardous residues on the hay crop. A quart of a formulation such as "Marlate" 2-MR methoxychlor insecticide in 10 gallons of spray per acre when the second or third growth is two to four inches high is the usual rate of application. On sandy soil, this may be increased to from one and a half to two quarts of the product per acre. At this rate, it is estimated that a dollar's worth of "Marlate" 2-MR methoxychlor insecticide can bring a return of from 500 to 1,000 pounds more good grade alfalfa hay.

The effect of leafhopper control on the following year's crop was studied by M. C. Wilson, R. L. Davis, and G. G. Williams of the departments of entomology and agronomy at Purdue. Following is their table which shows that on nine alfalfa varieties an average of 30 per cent greater yield from the first growth in 1954 resulted from leafhopper control in 1953.

Variety	Recovery Per Cent May 6, 1954	1 Yield Tons/Acre Leafhoppers Controlled 1953	June 6, 1954 Leafhoppers Not Controlled 1953	Per Cent Yield Increase
Nomad	25	1.24	.94	32
Buffalo	20	1.55	1.16	34
Williamsburg	12	1.56	1.26	24
Rhizoma	18	1.78	1.41	26
Kruger	11	1.48	1.19	24
Grimm	22	1.61	1.18	36
Narragansett	14	1.82	1.40	30
DuPuits	14	1.66	1.21	37
Ranger	10	1.48	1.17	26
Average	18	1.58	1.22	30
	LSD 5%	.26	.17	
	1%	.35	.23	

1. Per cent more growth on paired variety plots when leafhopper control was applied the previous season. Measurements showed no differences in recovery in 1954 as a result of irrigation in 1953.

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Soil fertility measuring device in use in the field. The soil cup itself (shown in use) is now made of "Zytel" nylon resin as being most resistant to rough field use.

SOIL MEASURING DEVICE

USES TOUGH NYLON CUP

The measurement of soil fertility is becoming more and more a critical activity of present day agriculture. Today most farmers realize that two important soil properties, namely the moisture content and the soluble salt or fertilizer content, are exceedingly important in proper crop control.

A New Jersey instrument firm has developed a portable conductivity bridge which is widely used, in conjunction with a soil cup made of molded "Zytel" nylon resin, for the measurement of soil fertilizer content. About a year ago, they switched from previously

the construction of their soil used materials to "Zytel" in cups because they had discovered that the molded nylon takes considerable abuse. What is more, the appearance and styling of the "Zytel" cup make it an attractive unit.

The determination of the total soluble salt or fertilizer content of soils by means of a measurement of the electrical conductivity of either a moistened sample, or a water extract, of the soil has been proven theoretically sound. It is a rapid, accurate and convenient method of testing.

Basically, this method depends upon the variation of electrical resistance of a moist sample of soil with its salt content in a standardized cup cell. Since temperature and water content affect the measured resistance, the first is measured and a correction applied from tables supplied with the instrument. The water content is then uniformly adjusted to the saturation point. The soil extract conductivity method differs only in that a two-to-one or five-to-one distilled water extract of air-dried soil is prepared, its conductivity measured, and suitable temperature correction applied.

The design of the soil cup has been recommended by the USDA, with these directions for its use:

"A sample of the soil to be tested is thoroughly mixed with distilled water, or rain water, until the saturation point is reached, as indicated by the appearance of free water. An easy test for determining when saturation has taken place is to

strike the soil with the flat blade of the spatula used in mixing.

"If little bubbles are seen to form and break on the surface, the soil is saturated. The saturated soil material is then transferred to the soil cup with the spatula, the bottom of the cup being tapped at the same time to expel air bubbles. The top of the soil is struck off level with the top of the cup. If the soil is very dry, about 20 minutes should elapse after moistening before making a measurement."

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TWO NEW AEROSOL PRODUCTS

FOR LAWN AND GARDEN CARE

Du Pont is introducing this spring two new aerosol products for home gardening and lawn care -- an unusual sort of weed killer which lets you know which weeds have been sprayed, and an insecticide combination effective against a wide range of garden pests.

The push-button weed killer, based on a 2,4-D formulation, also contains an inert white coloring agent. This coats the dandelions, plantains, and other broadleaf weeds which are sprayed, serving as a marker. The material is packed in 12-ounce aerosol cans, with polyethylene spray nozzles. It is intended, of course, for spot treatment of individual weeds, rather than the over-all spraying of a lawn for weed control. Like other 2,4-D formulations, it gives best results if applied when weeds are young and growing vigorously, on a sunny day when the air is still.



Spraying a plantain with the new aerosol weed killer. Note how the plant is whitened to show it has been treated.

The new aerosol insecticide is for use on roses and other outdoor flowers and ornamentals. It contains methoxychlor, lindane, and rotenone. With these three active ingredients, it is effective against virtually the entire gamut of bugs that attack the flower garden, including aphids, red spider mites, thrips, lacebugs, Japanese beetles, leafhoppers, diabrotica beetles, and some of the caterpillars which feed on flower garden plants.

AMERICAN AGRICULTURE'S CHALLENGE TO THE KREMLIN

Excerpt from a recent speech by Secretary of Agriculture EZRA TAFT BENSON, before the Philadelphia Society for Promoting Agriculture and the Franklin Institute.

I am sure that Benjamin Franklin would be proud of America's great agricultural progress -- progress which has come about in no small part along the lines he envisioned. I am equally certain that in this Twentieth Century he would see as many stimulating challenges on the farm as he saw in the Eighteenth Century -- perhaps even more, with our agricultural scientists taking their first, uncertain steps into a whole new realm of atomic possibilities.

As one of the most effective spokesmen of his age for the cause of world peace, Franklin today would certainly argue with all of his eloquence for the employment of atomic energy to improve the lot of mankind. He might well point an accusing finger at the men of the Kremlin and challenge them to raise up the living standards of their people that, in his ringing words, "men would cease to be wolves to one another." This failure of the Soviet system to provide for the basic needs of its own people could be one of the most important historical facts of our time.

One clear clue to the whole Russian riddle -- made even more apparent with the fall of Malenkov last month -- may be found in the shortcomings of agriculture under the collective farm system. Russia has not only failed to keep pace with farm progress in the free world. She has lagged far behind. This fundamental weakness may force internal changes which one day will provide a new basis for mutual understanding and lasting world peace.

Food, rather than nuclear weapons, could possibly become the decisive factor in shaping the course of history. Certainly at least a part of the Soviet sabre-rattling is designed to divert the attention of the Russian people from their own unhappy situation.

The masters of the Kremlin imply that shortages of food and consumer goods are the result of a capitalist conspiracy which forces Russia to devote so much of its production to defense of the homeland. Yet the Russian peasants and workers may wonder how it is that the so-called "decadent" nations of the free world are able to mount this alleged threat of aggression against the Soviet Union -- and still devote by far the greater part of their total production to improving the living standards of their people.

Close to three-fourths of Russia's industrial production by-passes the consumer. It goes into heavy industry to produce more heavy industry and armaments. In the United States, by contrast, nearly three-fourths of all production is for con-

sumer use in the form of food, clothing, homes, automobiles, electrical appliances, and many items which would be considered luxury goods in Russia.

The population of Russia is estimated at more than 200 million. This represents an increase of roughly one-third since 1928. Yet over this same period, Russia's cattle numbers have declined by about eight per cent.

In the United States last year consumption of red meat reached 154 pounds per person. In addition, the average citizen here ate more than 28 pounds of chicken and turkey. For the Russian it was a different story. If he happened to be in the right lines at the right time, he might have been lucky enough to get nearly a pound of meat each week.

This would certainly have been less than he wanted but still perhaps as much as he could afford. The average Russian worker must labor two hours to earn enough to buy a single pound of beefsteak. An American industrial worker earns his pound of beef in 24 minutes -- one-fifth of the time. The average American spends one-fourth of his disposable income for food -- the average Russian one-half. If he were content to buy the same kinds and amounts of food as the Russian does, an American could get by for perhaps 10 to 15 per cent of his spendable income.

On Russia's 90,000 collective farms, there are roughly 50 million farm workers, about six times as many as in the United States. The American farm worker . . . turns out food and fiber for himself and 17 others. The Russian farm worker produces only enough for himself and three or four additional people. Perhaps he isn't doing quite that well, in view of the current official complaints.

Even these figures do not tell the full story. Our farmers provide their city customers with a broad variety of food, emphasizing heavily the nutritious, high protein items such as meat, dairy products, poultry and eggs and fresh fruits and vegetables. The Russian diet features bread, potatoes, cabbage soup and porridge. This is filling enough, to be sure. But it could get monotonous -- even in a so-called "people's paradise."

The plight of the Russian farm worker is, in many ways, even more desperate than that of his city cousin. He lacks the machinery, the fertilizer and the know-how required for a first-class production job. He is plagued by government inspectors and supervisors who assign him impossible quotas. If he manages to raise a few more bushels of wheat or a few more chickens, taxation and requisitioning policies deny him real benefit from his efforts.

Only after required deliveries are made to the govern-

ment -- and at niggardly prices -- is provision made to meet his own needs. What he gets is mostly in kind and represents but a fraction of the fruits of his labor. This in large part he must eat to live. Such money as he receives, or is able to get from sale of produce he can ill spare on the so-called "free market," is of less value than even the money of urban dwellers. For the general shortage of consumer goods is especially prevalent in rural sections.

Now Russia proposes to solve food shortages through the creation of a corn-hog program much like the one which flourishes in midwestern America today. The earlier plan to increase livestock production has fallen far short of its goal and there is good reason to believe that the projected expansion in hogs will be no more successful. Neither Russia, nor any other country for that matter, has the ideal combination of soil, climate and know-how which has made our midwestern corn-hog belt the most productive area of its kind in the world. And you can't feed dialectical materialism to a hog.

I cannot envision a thriving or even moderately successful livestock industry operated by the state. I just can't see a Russian farm worker rolling out of his pallet at 3 A.M., fumbling for his boots on an earthen floor, and then rushing to the barn to supervise the farrowings of the state's sows. What is more important, I don't believe the Soviet peasant can see himself doing it, either.

This points up the basic weakness of Russian plans to expand her livestock industry. Somehow, Duroc Jerseys, Holstein-Friesians, and even Rhode Island Reds just don't seem to mix with Marx and Engels.

The successful American dairyman knows that careful, yes even tender, handling of his herd is a most important factor in milk production. He takes great pride in his animals. He knows, moreover, that his livelihood depends upon efficient milk production.

If the Russian dairyman has a different outlook, it is quite understandable. He knows that what he milks from the cow will in turn be milked from him by the state.

Many factors doubtless entered into the recent shakeup in the Kremlin. Among them, however, agricultural problems certainly loomed large. Russian agriculture has been chronically ill for a long time. Shocking admissions of past failures were publicly aired within a few months of Stalin's death. The list of Beria's crimes on the occasion of his liquidation in the summer of 1953 included charges that he opposed measures necessary for the improvement of agriculture. And Malenkov's ouster as Premier was accompanied by his "admission" of "guilt" for the agricultural situation. Attribution of responsibility for agri-

cultural difficulties to these two individuals does not mean that they were in fact the ones at fault. Khrushchev actually had a far greater hand in agricultural policy over the years than Malenkov. But the care exercised to make first Beria and then Malenkov scapegoats for failure in this field is indicative of the magnitude of the agricultural problem.

It is not for me to speculate upon whether these happenings presage a new direction of Soviet policy -- a lesser or greater threat of war. Conceivably a power-mad ruling clique could plunge the world into war in a last, desperate attempt to retain authority. We have, however, no indications that the Soviet situation has reached, or is approaching such a stage. We know that the men in the Kremlin face serious economic problems and that they are probably still torn by personality and power conflicts. But we have no reason to believe that the situation has suddenly become so acute that they are any more anxious than their predecessors to take the last desperate gamble.

The Malenkov purge, coming as it did after the frank acknowledgment of September, 1953, of past agricultural failures, spotlighted again the fact that agriculture may be Russia's Achilles' heel. It has underscored the most candid admission of this weakness ever to come from Soviet leaders. It has also provided the Russian people with a clearer understanding that their own administrators, rather than the free world, have been responsible for the breakdown in food production.

Even in a complete dictatorship there must exist opinion, repressed though it may be by fear. The secret police may execute a man for what he says, but even they cannot successfully probe the inner recesses of a man's mind.

Somehow I cannot believe that it is possible to keep a people in complete bondage forever -- though this conclusion may be based more upon hope than solid evidence. While it may be true that a peasant or a factory worker cannot revolt against a tank, it is also true that the ordinary people of Russian man the Soviet Army's tanks. It seems to me that the Russian dictatorship must one day face even greater internal stresses unless it embarks upon a program which will provide the people with tolerable living standards and at least some semblance of individual freedom.

If Russian planning and production were directed toward improving the living standards of the people instead of preparation for war, it would indeed be a happy day not only for that nation but for all of the world. More and better food, more consumer goods and hope for an even better future could ease the terrific economic and social pressures which must exist within the Soviet Union.

Meanwhile, we must keep America and the free world

strong -- militarily strong, economically strong and, let us never forget, spiritually strong. Because the final decision on this great, overriding question of war or peace may not be ours to make, we must be prepared for any eventuality.

The maintenance of an expanding, prosperous, and free agriculture in our own country is essential to the security of the United States. I would place special emphasis upon a free agriculture. Freedom makes for progress. Without freedom our own farmers would be unlikely to fare much better than those of the Soviet Union. Certainly the example of Russia should be convincing evidence that the withering hand of totalitarian control blights all of agriculture.

As Thomas Jefferson once wrote: "Were we directed from Washington when to sow and when to reap, we should soon want bread."

Perhaps this quotation has come to the attention of the Russian leadership. At any rate, it was announced recently that the practice of handing down planting and production decrees from Moscow would be modified to permit a much greater voice in such decisions by farmers and farm managers.

If the Russian government has done nothing else for the free world, it has at least provided a laboratory for testing nearly every conceivable means of state intervention in agriculture. It has demonstrated for all to see that farming will not flourish in a climate which denies real incentives to farmers.

It has proved beyond a doubt that complete regimentation stifles agricultural production. It has demonstrated that the agricultural system it seeks to impose on other countries as a part of the communist yoke yields only chronic shortages. It has unwittingly provided the entire world with a most unfavorable comparison of the merits of communism versus private enterprise in the field of food production.

* * * * *

* NEW METHIONINE INFORMATION ANNOUNCED *

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* New information about the use of the essential amino *
* acid, methionine, for improving feed efficiency in broiler *
* rations was revealed by Dr. J. T. Baldini, Du Pont Company *
* nutritionist, at a recent meeting of poultry nutritionists in *
* San Francisco. The new development is a method of calculating *
* the most effective amount of methionine for any broiler ration *
* on the basis of its calorie content. The discovery makes it *
* possible for the first time to calculate proper amounts of an *
* essential nutrient for feeds of various energy levels, and *
* predict the approximate response. *

* *

QUICK HAND-DUSTING

CONTROLS HORNFLIES

Depending on where you live, fly season is either just arriving, or an established fact by this time.

Along with residual sprays for barn walls, aerosol space sprays for short-term control, and the trend in recent years toward baits, a new technique is also finding favor for the control of hornflies which pester cows on pasture.

The material involved is no newcomer. Methoxychlor insecticide, formulated as a 50 per cent wettable powder, has been the dairyman's standby for residual fly control on cattle ever since it was discovered that DDT used on animals tended to show up in the milk.

The new method of using methoxychlor, however, is quick, effective, and requires no spray equipment. Simply take a heaping tablespoonful of the 50 per cent powder in your hand, sprinkle it along the back of the animal, and rub it in lightly so it will sift down through the hairs. This powder should be distributed as evenly as possible from the poll down along the neck and withers, over the back, rump and upper flanks.

Tests last year using this method of application showed two to three weeks of hornfly control for each such hand-dusting. This means that a four-pound bag of a 50 per cent product such as "Marlate" 50 methoxychlor insecticide will pro-



Sprinkle a heaping tablespoonful of a 50 per cent wettable powder formulation of methoxychlor along the neck and back of each cow.



Rub the powder in lightly, so it will work into the hair and reach the hide. Hornflies are controlled for two to three weeks with each application.

vide treatments every two weeks for 20 cows through a 10-week period.

Dairymen should be warned against practicing this hand-dusting type of application with other types of residual insecticide, due to the toxic hazard presented by many of them. Because of its low order of toxicity to humans and livestock, methoxychlor is well suited to this new, quick method.

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POISON IVY OUTLAWED
BY MASSACHUSETTS LAW

What you've always known about poison ivy is now in a law. It's been declared a "public nuisance" by the Massachusetts legislature.

Massachusetts is following the example of a number of western states where control of "noxious weeds" is the legal responsibility of the property owner -- and the law can be enforced. The eradication of poison ivy is first up to the land owner. If he does not get the job done, then the town can step in through its municipal council and local gypsy moth control authorities. The moth control superintendent can destroy the public nuisance and bill the owner. Charges for poison ivy clean-up cannot be in excess of one-half of one per cent of the assessed valuation of the property. Actually, killing a good-sized patch of poison ivy may not cost as much as the doctor and drugstore bills for one moderately severe poison ivy attack.

A most effective way to get rid of poison ivy is to spray it with either "Ammate" weed and brush killer or a combination of 2,4-D with 2,4,5-T. It should be sprayed during the summer when the ivy is in full foliage and growing well, but before it starts to change color in the autumn. A solution of "Ammate," with a spreader-sticker included, is usually more effective than the hormone-type herbicides, and it has the added advantage that it gives off no fumes to damage sensitive plants that may be in the garden or yard.

A poison ivy control program should be set up on a two-year basis. One application of "Ammate" will usually kill tops and roots of about 90 per cent of the infestation. But there may be some "misses" and some poison ivy may grow up from seed. So it is desirable to spray these in the second season.

From three-quarters of a pound to a pound of "Ammate" should be dissolved in a gallon of water for poison ivy control. Du Pont Spreader-Sticker is used at a rate of eight to 10 drops in a gallon of spray solution. The foliage should be wet thoroughly -- until the spray begins to run off. With the 2,4-D--2,4,5-T combination, about three tablespoons in a gallon of water will give the proper concentration of spray.

MELON PROTECTION PAYS IN

GIBSON COUNTY, INDIANA

By Kenneth W. Bradfield*

Melons are the number one crop in Gibson County, Indiana's sand land. Approximately 75 per cent of the farm income from this area is derived from the sale of watermelons and cantaloupes.

Melons have been produced here for over a half a century, and many changes have taken place in culture and marketing of the crop during this time. In the early days, melons were hauled by wagon to nearby Poseyville and loaded on boxcars for shipment to midwest and eastern markets. Today, during the harvest season, a continual stream of trucks, large and small, flows from this area, carrying the crop directly to market.

In this wind-blown sand soil a typical rotation might be sweet potatoes, watermelons, cantaloupes, with rye intercrop. Successive melon planting has caused several major problems. One of the first big problems confronting the growers was the loss of watermelon plants due to wilt. This was overcome by a wilt-resistant variety, the Purdue Hawkesberry, developed at Purdue University.

A perennial problem in melon culture is the striped cucumber beetle -- number one target in any spray or dust program. Not only does it destroy melon plants, but it also carries diseases from one plant to another. According to partners Jim Grigsby and his son John, who are among the most progressive melon growers in this area, "Marlate" 50 methoxychlor insecticide has given them their best control of this annual pest.

"'Marlate' doesn't just drive the beetles out of the field as do many chemicals we have used," John reports. "It actually kills them. We can find dead beetles all over the farm."

Their usual insect control program provides for one pound of the insecticide per acre in 60 to 70 gallons of water. From this mixture they have never had leaf injury or burning, though they've seen such injury caused by other materials. The Grigsbys report adequate control with three to four sprayings per season. Most of the spraying is done while the plants are still small. Other growers confirm the Grigsbys' experience with methoxychlor for control of striped cucumber beetle.

As for diseases, rust will sometimes reduce the melon crop by 75 to 80 per cent. While this disease doesn't occur every year, it will many times spell the difference between profit and loss. Growers have found the rust problem is most severe during seasons of high humidity and rain. "Parzate" zineb fungicide has

proven itself to be invaluable in the control of rust. John Grigsby reported that the first year he used this fungicide, yield in the sprayed area was at least 50 per cent higher than in unsprayed areas. Two pounds of "Parzate" per acre in 100 gallons of water gave excellent control of rust in Grigsby fields.

Spraying may continue from planting up to harvest if weather favors the development and spread of rust. Some growers report spraying six to eight times during the growing season. In this area, where cantaloupes of such varieties as the Pride of Wisconsin, Queen of Colorado, and Hales Best are grown, "Parzate" zineb fungicide has done a tremendous job in returning extra profits to its users.

While many other problems such as nematode, red spider, and weeds face the Gibson County melon growers, successful control of two of the worst pests, cucumber beetle and rust, gives hope that growers will ultimately overcome the others.

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*Mr. Bradfield was formerly a county agricultural agent and is now in field work with Hahn, Inc., agricultural supply firm of Evansville, Indiana.

EXPANDED CROP USES SEEN FOR

SUBSTITUTED UREA HERBICIDES

The remarkable family of substituted urea compounds introduced within recent years for herbicidal uses, continues to make news on a number of agricultural fronts.

In Hawaii, where substituted ureas were first used commercially in sugar cane and pineapple weed control, successful methods of applying "Karmex" W herbicide, an 80 per cent wettable powder formulation, by airplane have been developed.

Also in Hawaii, experiments are under way with chemicals to inhibit sugar cane tasseling and it is interesting that "Karmex" W is among the outstanding candidates for this use.

Meantime, use of "Karmex" W as a weed killer in asparagus beds, introduced two years ago, has become a popular practice especially in California, Michigan, New Jersey, Delaware and Maryland.

This year is also seeing increased activity with the substituted urea material, "Karmex" DL herbicide, as a pre-emergence treatment for cotton. During 1954, "Karmex" DL was used on more than 9000 acres of cotton in the South. With hoeing costs running from \$5 to \$40 per acre, this new herbicide which can eliminate from one to four hoeings spells real savings for the cotton grower. Cost of applying "Karmex" DL amounts to less than \$2.50 per acre.

PHENOTHIAZINE AS PARASITE CONTROL FOR DAIRY CALVES

By B. B. Riedel, John Owen and H. F. McCrory*

Two groups of dairy calves, each consisting of Jerseys, Guernseys, Ayrshires, and Brown Swiss, were used in a Mississippi Agricultural Experiment Station study to determine the value of phenothiazine in parasite control.

The experiment began in December, 1953, and ended one year later because some of the calves in each group were ready to be bred. The calves ranged in age from four to 16 weeks when the experiment was begun. They were assigned to separate range areas of natural grazing supplemented with Johnson grass hay. They were on calf ranges until the end of May and were then transferred to permanent grazing pastures for the last six months of the experiment.

A commercial calf ration was fed to the calves less than four months of age, while the older ones received a grain ration. There were 16 calves in the control group which did not receive phenothiazine, and 20 in the group which was fed 1.5 grams of phenothiazine daily in the commercial feed or grain ration.

The animals in each group were weighed, fecal samples for ova counts were collected, and heart girth and height measurements were taken every four weeks. Worm egg viability was determined under laboratory conditions and parasite larvae counts on the forage of the pastures were made in June and again in December (1954).

By the end of experiment the calves treated with a low level of phenothiazine weighed an average of 26 pounds more than the untreated calves, but the phenothiazine did not affect heart girth and height measurements.

At the beginning of the experiment each of the groups of calves was infected with one or more of the following parasites: wireworms, brown stomach worms, nodular worms, cooperids, trichostrongylids, and nematodirids.

At the end of 44 weeks, fecal samples showed that all of the non-treated control calves harbored gravid female worms, but less than one-half of the treated calves had worms.

The average worm egg output by the control calves achieved an extremely high level of 1950 eggs per gram of feces. The treated calves shed only one-fourth as many worm eggs into the pasture at their highest average peak.

Of the worm eggs shed into the pasture by the two groups of calves, 77 per cent from the control group hatched;

but only 1.6 per cent of the eggs passed by the treated group developed into larvae.

During the last six months of the experiment the parasite larval count on the forage from the control pasture showed a profound increase, whereas the larval count on the pasture used by the treated calves showed a slight decrease.

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*Department of Veterinary Science, Mississippi State College. This report was originally published in "Mississippi Farm Research," and is being reprinted here with permission of the authors.

LOSSES DUE TO PESTS COST AMERICAN
FARMERS OVER \$13 BILLION ANNUALLY

Estimates of the economic losses which can be charged against agricultural pests have been presented from time to time, and are of course subject to change as market values of farm crops change, and as new chemical weapons to battle these pests are adopted. Most recent estimate of such losses was included in a speech by True D. Morse, Under Secretary of Agriculture, before a meeting of the National Agricultural Chemicals Association.

"Farming continues to be a contest between man and his natural enemies," Mr. Morse pointed out. "It is a costly contest that runs into billions of dollars each year.

"Agriculture suffers great losses from weeds, diseases, and insects. These losses have been estimated at current per unit prices (assuming no decreases due to effects of larger supplies).

"There are hundreds of aggressive weeds that compete with crops. They reduce crop values annually over \$2 billion.

"There are about 350 plant diseases of major economic importance. The total cost of plant diseases is almost \$3 billion.

"There are 700 insect pests that are major enemies. There are several thousand fungi and many different kinds of bacteria and viruses that attack plants or animals. Insects annually destroy \$2 billion worth of crops.

"Annual production losses in farm crops from all causes amount to about \$8.3 billion. These losses are 20 per cent of annual farm production potential.

"Over \$2.5 billion worth of farm animals and animal products are lost to diseases, parasites and insects.

"Total annual losses to crops, pastures, ranges, livestock, and products are over \$13 billion.

"We look to the chemical industry for the methods and products that will help reduce these huge losses. It is a \$13 billion order."

NEOPRENE-COATED NYLON TARPAULIN

BOTH LIGHTWEIGHT AND WATERPROOF

About two years ago, an article in this news letter relative to nylon tarpaulins created considerable interest. Since that time, tarp material of nylon, coated on both sides with neoprene rubber has been developed, tested, and has more than proved its worth and economy.

The tarps on which performance data are available underwent two years of field tests by trucking firms, then were examined in the Du Pont laboratories. They showed no loss in tensile strength and only a slight drop in tear resistance.

Field tests still are underway on neoprene-nylon tarps in other agricultural applications, such as hay stack covers, machinery covers, and temporary and permanent silage storage.

These tarps answer the requirements for strong, lightweight, long-wearing, waterproof covers. Moreover, they are resistant to grease, oil, most chemicals, sunlight and climate extremes.

While cotton tarps will shrink from five to 15 per cent in a year's time under trucking service, there is no shrinkage problem with neoprene-nylon material. Neither will it rot nor mildew, even when stowed wet for weeks.

The neoprene coating allows tarp manufacturers to use a smooth, vulcanized hem and seam rather than stitching, producing a strong joint which is waterproof because there are no needle holes. An important economic advantage is the ease and low cost of repairs, which can be made as quickly as patching an inner tube with a special patching kit containing the same bonding agent used on tarp seams. Conversely, for canvas tarps, the cost of repairs often exceeds the original cost before the tarp is discarded.

Light weight is one of the most important features. For example, a neoprene-nylon tarp weighing only 42 pounds, complete with tie lines and fittings, used on a 32-foot trailer, replaced a similar No. 8 duck tarp which weighed 123 pounds. Yet, a neoprene-nylon tarp will exhibit up to four times the tear strength of duck. One man can handle it easily, where two or three men are needed to apply or stow the heavier, stiffer, bulkier duck tarp. The neoprene-nylon will remain flexible in freezing weather and, being non-absorbent, will not take on weight in wet weather.

Neoprene-nylon tarpaulins now are readily available for all agricultural and truck-cover applications.

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* EXPERIMENTERS' NOTATIONS *
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* A Round-up of Data from Across the Nation *

Transference of internal parasites between flocks of sheep and native deer, grazing the same pastures, has been a subject of study in California's Mendocino County. Chemical control of these parasites by administering drenches of phenothiazine, as well as prophylactic doses in a salt mixture, to the flocks is considered one of the major steps to be taken. While this program is not practical for the deer, it is believed that reducing parasites in the sheep will be of indirect benefit to deer, since the rate of re-infection from the pasture would be lowered.

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With codling moth demonstrating a resistance to DDT in some sections of the country, an alternate spray suggestion in Ohio suggests the use of a pound of EPN 300 insecticide per 100 gallons of spray in areas where DDT has failed to control this pest.

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Speaking of insect resistance to insecticides, Dr. James B. Kring, entomologist at the Connecticut Agricultural Experiment Station at New Haven, has uncovered an interesting matter concerning insect sensitivity. A flea beetle, his tests show, can tell whether or not a potato leaf has DDT sprayed on it and, given a choice, will select the unsprayed leaves for its feeding every time.

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Urea in the diet of a flock of sheep does not impart a flavor to the mutton. U. S. Garrigus, sheep specialist at University of Illinois, served to a taste panel meat from lambs that had been receiving 92 per cent of their nitrogen in the form of urea for 57 days before slaughter, along with meat from other lambs that had received no urea. The panel just couldn't tell the difference.

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Research workers at the Texas Agricultural Experiment Station have found that the hollow-cone type spray nozzle is superior to nozzles giving a flat, fan-shaped pattern for cotton insect control. The tests covered a three-year period.

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Regarding another application problem, Oklahoma A. & M. College experimenters report that aerosol products and pressure oil cans were effective methods of applying oil emulsions for control of corn earworm in their tests.



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